Honors Chemistry - Nature of Science Problem Set

Stasya

1. How many significant figures are in 9.23×10^5?

2. Write 100.1 in scientific notation.

3. What is (2.3cm)(4.007cm) equal to?

4. What is $\frac{65 \times 28 \times 1.22}{5.5 \times 47 \times 13.9}$ equal to?

5. If candy bars are 3 for one dollar, how much money will you need to buy 46 candy bars?

6. What volume will be occupied by 7.0 kg of helium if 4.003 g of helium occupies 22.4L?

7. Twenty five paper clips are dropped into a graduated cylinder and the water level rises from 10.8 mL to 12.2 mL. If the density of the paper clips is 7.87 g/mL, what is the mass of the 25 paper clips? What is the mass of one paper clip?

8. A block of wood with a density of 0.548 g/cm^3 has a mass of 34.49 g. If two dimensions of the block are 2.5 cm and 7.8 cm, what is the 3$^{\text{rd}}$ dimension?

9. Is steam condensing a physical or chemical change?

10. Is baking cookies a physical or chemical change?

11. What is the element symbol of sodium, and is it a metal, nonmetal, or metalloid?

12. Is "hot" a qualitative or quantitative data?

13. Is air a element, compound, or mixture?

14. Is muddy water a heterogeneous or homogeneous mixture?

15. Gabriela scored 30%, 70%, and 98% on the first three tests. Were her grades accurate and/or precise?

16. The accepted density of lead is 11.40 g/mL. Your lab group determined the lead density to be 9.5 g/mL. What is your percent error for this lab?

17. What does the prefix milli- mean, and what is its symbol?

18. If an object has a mass of 43.23 g and a volume of 32.1 mL, what is its density?

19. Would the object in #18 sink or float in water?

20. Convert 19,224 minutes to days.

21. Chemists have determined that 18.02 g of water contains 6.02×10^{23} molecules, and that 1 molecule contains 3 atoms. How many atoms are there in 23.5μg?